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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,877	09/27/2000	KAZUO ICHIKAWA	107469	7376

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OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER	
ZERVIGON, RUDY	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/670,877	ICHIKAWA ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) *3 and 4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5 and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 9, 2004 and March 5, 2004 have been entered.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al (U. S. Pat. 5,648,276) in view of Babayan et al (US 2002/0129902 A1). Hara et al teaches a CVD system (C_1, C_2; Figure 2; column 7, lines 7-8) provided with a plasma generator (Fig.3, "UE", column 7, lines 15-20) having a plasma generation chamber (Fig. 3 containing "PL"; column 7, lines 15-20), including a circumferential wall (QW; Figure 3; column 7, lines 10-15) made of an insulator ("quartz"), the plasma generation chamber (Fig. 3 containing "PL"; column 7, lines 15-20) being separated from a film deposition chamber (Fig. 3 "QW" and "SW"; column 7, lines 10-15) in which a substrate (1) is arranged, and a film is deposited (column 7, lines 7-8) on the substrate within the same chamber (Fig. 3 "QW" and "SW"; column 7, lines 10-15) as the substrate is not moved (Fig.3). A material gas (Fig.3, "Gas (SiH_4, etc)") is directly supplied into

the film deposition chamber, radicals in the plasma are introduced into the film deposition chamber from the plasma generator through introduction holes ("ME", mesh, Fig.3) of a lower plate (lower half of "ME"), and a thin film ("a-Si:H", column 7, lines 5-10) is deposited on the substrate. A gas feeder ("Gas (Ar, ...)"; Fig.3) is provided to the plasma generator.

Hara et al further teaches a silicon-based film is deposited on a substrate ("a-Si:H", column 7, lines 5-10, lines 65-67), then converting the silicon-based film to a crystalline silicon-based film by laser annealing (column 8, lines 5-11), then depositing a gate insulating film ("SiO_2"; column 8, lines 20-25) on the crystalline film by a CVD system comprised of a separate film deposition chamber and plasma generation chamber as described above. Plasma "cleaning" is discussed as a step prior to forming the gate insulating film (column 13, lines 9-20). Also, see column 14, lines 10-25 and column 17, lines 1-10.

Hara does not teach that the lower plate (lower half of "ME") is connected to ground thereby allowing only radicals to pass. Further, Hara does not teach diameters of his introduction holes thereby allowing only radicals to pass.

Babayan teaches a capacitively coupled plasma apparatus (Figure 1). Specifically, Babayan teaches both electrically conductive upper (26, 28) and electrically conductive lower (22) electrodes as grounded ([0042]) thereby allowing only radicals to pass ([0039]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to ground Hara's upper electrode (ME) as taught by Babayan, and to optimize the dimension of Hara's introduction hole diameters thereby allowing only radicals to pass.

Motivation for Hara to ground is upper electrode as taught by Babayan and for Hara to optimize the dimension of Hara's introduction hole diameters thereby allowing only radicals to pass is to

avoid ion induced damage (last line, [0039]). Further, it is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04).

Response to Arguments

3. Applicant's arguments filed on February 9, 2004 and March 5, 2004 have been fully considered but they are not persuasive.

4. Applicant states:

"

Applicants respectfully submit that the finality of the Office Action should be withdrawn because due consideration was not given in the Office Action to the arguments presented in the July 22, 2003 Amendment that neither Hara, nor Babayan, nor their combination discloses a CVD system with a cleaning gas feeder provided to the plasma generator, wherein the film is deposited on the substrate within the same chamber as the substrate is not moved, as recited in claims 1 and 5.

"

The Examiner disagrees. The Examiner specifically stated that Hara teaches:

"

a substrate (1) is arranged, and a film is deposited (column 7, lines 7-8) on the substrate within the same chamber (Fig. 3 "QW" and "SW"; column 7, lines 10-15) as the substrate is not moved (Fig.3).

5. Thus in response to applicant's argument that Hara does not teach "a substrate is arranged, and a film is deposited on the substrate within the same chamber as the substrate is not moved", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

6. Applicant states:

"

..the cited passages do not suggest a CVD system with a plasma generator that has structures that feed a cleaning gas to the plasma generator. Therefore, Hara fails to disclose a CVD system with a cleaning gas feeder provided to the plasma generator, wherein the film is deposited on the substrate within the same chamber as the substrate is not moved, as recited in claims 1 and 5. Babayan fails to overcome this deficiency in Hara.

"

7. In response to applicant's argument, a recitation of the intended use, i.e. "Hara fails to disclose a CVD system with a cleaning gas feeder provided to the plasma generator" of the claimed invention must result in a structural difference between the claimed invention and the

prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this regard, processing gas identities do not limit structural apparatus claims as presented herein.

8. Applicant states that "introduction holes of a lower plate" were not addressed in the Final office action. However, as shown above the Examiner indeed shows where Hara teaches introduction holes ("ME", mesh, Fig.3) of a lower plate (lower half of "ME").

9. Applicant states:

"

...the perforated sheets 26 and 28 plays no role in preventing passage of plasma, or the passing of only the radicals. Therefore, Babayan fails to provide for the deficiency in Hara.

"

10. In response, it is noted that Applicant's structural configuration (Figure 2) is identical when the above proposed combination is effected. As a result, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (571) 272-1439.